

Amendments to the Specification

Please replace the title with the following amended title:

SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING
SEMICONDUCTOR DEVICE INCLUDING SEMICONDUCTOR ELEMENTS MOUNTED
ON BASE PLATE AND METHOD FOR MANUFACTURING THE SAME

Kindly amend the specification as follows:

Page 1, between the title and the heading "**BACKGROUND OF THE INVENTION**", insert

--CROSS REFERENCE TO RELATED APPLICATIONS

This is a divisional application of application Serial No. 09/757,663, filed January 11, 2001, which is a divisional application of application Serial No. 09/460,984, filed December 15, 1999, now U.S. Patent No. 6,201,266, which are hereby incorporated by reference in their entirety for all purposes.--

On page 1, after the heading "Background of the Invention", please insert the following heading between lines 3 and 4, centered:

Field of the Invention

***On page 1, please insert the following heading between lines 5 and 6,
centered:***

Description of the Related Art

Page 1, please delete the heading "Prior Art" of line 15.

***Please replace the paragraph beginning on page 2, line 7 with the following
amended paragraph:***

In order to solve this problem, there has been proposed a structure which is completed for instance by putting one semiconductor element on the other, connecting the wiring formed on respective semiconductor elements with each other by means of thin metal wires, and finally applying a sealing resin to the entirety of the piled-up and connected semiconductor elements to cover it therewith. According to the structure like this, the high-density packaging might be made possible without increasing the size or the surface area of the printed board. However, another problem arises in connection with the total manufacturing yield of the semiconductor device as a finished product. In general, the semiconductor elements receive a simple test for checking their performance in the state of their being in a wafer. On the other hand, the more complete final test (i.e. shipping test) is carried out with regard to only a semiconductor device in which semiconductor elements have been fabricated. Consequently, if the semiconductor device is assembled by using two semiconductor elements which [[are]]

have not yet ~~passing~~ passed the final test, the final manufacturing yield of the semiconductor device as a finished product is given as the product of respective manufacturing yields with respect to two semiconductor elements. Consequently, the manufacturing yield would drop in reverse proportion to the degree of packaging density of the semiconductor device, which leads to the increase in the manufacturing cost.

Please replace the paragraph beginning on page 3, line 2 with the following amended paragraph:

The present invention has been made in view of the above problems that the prior art semiconductor ~~device~~ devices are still encountering, and the object thereof is to provide a novel and improved semiconductor device and a method for manufacturing the same, according to which it is made possible to provide high-densely packaged semiconductor devices without lowering the final manufacturing yield thereof.

Please replace the paragraph beginning on page 5, line 5 with the following amended paragraph:

The step of placing a plurality of second semiconductor devices on the mounting tape further includes ~~including~~ the steps of: forming a plurality of terminals on a semiconductor substrate; applying a sealing resin to the semiconductor substrate to cover the entire surface thereof on which terminals are exposed and polishing the sealing resin surface after the sealing resin has been completely cured until all the

surfaces of terminals are exposed; forming a plurality of slits by cutting in the sealing resin until the cutting goes into the semiconductor substrate by a predetermined depth; applying an adhesive retaining tape to the surface of the polished sealing resin; polishing the backside surface of the semiconductor substrate until reaching all the bottoms of slots; sticking a mounting tape on the polished surface of the semiconductor substrate; and removing the adhesive retaining tape.

Please replace the heading on page 6, line 29 with the following heading:

Detailed Description of the Preferred Embodiment Embodiments

Please replace the paragraph beginning on page 8, line 2 with the following amended paragraph:

Referring to Fig. 2, the second semiconductor device 120 includes a semiconductor element 1b having a thickness of about 400 μm , a plurality of electrode pads 6 formed on the semiconductor element 1b, and a plurality of wiring 2 which are made of copper or the like to be electrically connected with electrode pads. The surface of the semiconductor element 1b and the wiring 2 are sealed with the help of the sealing resin 5b having a thickness of about 100 μm . The upper surface of the wiring 2 exposing from the surface of the sealing resin 5b is treated with solder, thereby forming the bump 3. A reference numeral 4 represents an additional wiring made of copper or the like for connecting the electrode pad 6 with the wiring 2.

Please replace the paragraph beginning on page 8, line 16 with the following amended paragraph:

First, description will be made with regard to the first semiconductor device 110 with reference to Figs. 3A through 3C. As shown in Fig. 3A, the semiconductor element 1a and wiring 14 are provided on the surface of the epoxy base plate 16. Then, as shown in Fig. 3B, the electrode formed on the semiconductor element 1a is connected with the wiring 14 by means of the thin metal wires 15a. In the next, as shown in Fig. 3C, the sealing resin ~~[[5b]]~~ 5a is applied to one side of the epoxy base plate 16 so as to cover all the structural elements mounted on the epoxy base plate 16. Still further, the bumps 3 are formed on the backside of the epoxy base plate 16 as shown in Fig. 1. Since the epoxy base plate 16 includes a plurality of through holes 17, the wiring 14 is electrically connected with the corresponding bumps 3, respectively.

Replace the paragraph beginning on page 11, line 6 with the following amended paragraph:

As described above, according to the semiconductor device 100, the second semiconductor device 120 is mounted on the area which is located on the backside surface of the first semiconductor device ~~[[100]]~~ 110 ~~[[and]]~~ that includes no bump 3. Moreover, both of the first and second semiconductor devices 110 and 120 are packaged into the first semiconductor device 100 in the state that they have already passed their final functional tests. Therefore, the high density package can be obtained

without lowering the production yield.

Replace the paragraph beginning on page 11, line 14 with the following amended paragraph:

The first embodiment of the invention has been explained by way of the semiconductor device 100 which employs the first BGA semiconductor device 110. However, it should be noted that this is only an example ~~to the last and new limits~~ and should not limit the invention. For instance, as shown in Fig. 5A, the first BGA semiconductor device may be constructed as the first CSP semiconductor device 110' similar to the second CSP semiconductor device 120. As shown in Fig. 5B, the first CSP semiconductor device 110' includes an area similar to that of the first BGA semiconductor 110, for mounting the second CSP semiconductor device 120 thereon. In this case, the area is provided with neither electrode 2 nor bump 3. The structure similar to this is applicable to the embodiments described in the following.

Please replace the paragraph beginning on page 11, line 27 with the following amended paragraph:

A semiconductor device 200 according to the second embodiment results from improvement of the semiconductor device 100 according to the first embodiment of the invention. A common point between semiconductor devices 200 and 100 exists in that the surface having no terminal of the second semiconductor device 220 is joined to the

backside surface of the first semiconductor device 210 with the help of an adhesive 115 [[212]], thereby mounting the second semiconductor device 220 on the first semiconductor device 210. The improved point of the semiconductor 200 will be described with reference to Figs. 6A and 6B. As is previously noted, in order to avoid redundant repetition of detailed descriptions, the structural elements almost identical to those described in the previous embodiment are designated by like reference numerals or marks.

Please replace the paragraph beginning on page 12, line 24 with the following amended paragraph:

As described above, according to the semiconductor device 200, the area for mounting the second semiconductor device 220 thereon can have a wide space extended in its thickness direction. Consequently, even if the second semiconductor device 220 is a little thicker, the widened space can absorb that thickness at least in part, thus the spot facing portion 215 allowing the thicker second semiconductor device 220 to be accommodated therein. Also, with the formation of solder made bumps [[3]] 3b in the widened space, it is made possible to enhance reliability with regard to the electrical connection between electrical elements.

Please replace the paragraph beginning on page 15, line 5 with the following amended paragraph:

The fourth embodiment of the invention has been explained by way of the semiconductor device 400 which employs the first BGA semiconductor device 410. However, this is only an example ~~to the last~~, by which the invention should not be limited. For instance, as shown in Fig. 9A, the first BGA semiconductor device may be constructed as the first CSP semiconductor device 410' similar to the second CSP semiconductor device 420. As shown in Fig. 9B, the first CSP semiconductor device 410' includes an area similar to that of the first BGA semiconductor 410, for mounting the second CSP semiconductor device 420 thereon. In this case, however, the area includes no bumps 3 but electrodes 2 are exposed to the surface thereof, instead, and the terminals 2 of the first semiconductor device 410' are electrically connected with the corresponding terminals 2 of the second semiconductor device 420 through soldered joints 415. The structure similar to this is applicable to the embodiments described in the following.

Please amend the abstract as follows:

~~The invention provides a semiconductor device and a method for manufacturing the same, enabling the semiconductor device to be high-densely packaged without lowering the final manufacturing yield of products. A semiconductor device 100 includes the first semiconductor device 110 having a plurality of bumps 3 which are formed on~~

Preliminary Amendment dated September 9, 2003

~~the backside surface thereof, and the second semiconductor device 120 having a plurality of terminals 2 which are formed on the front surface thereof and are to be electrically connected with the bumps, the second semiconductor device being mounted on an area which is located on the backside surface of the first semiconductor device 110 without having any bump formed therein. The height of the second semiconductor device measured from the backside surface of the first semiconductor device is made lower than the height of the bump. The second semiconductor device is mounted on the first semiconductor device such that the surface provided with no terminal of the second semiconductor device is joined to the backside surface of the first semiconductor device with the help of an adhesive 115.~~
A method of manufacturing a semiconductor device and a semiconductor device including a first semiconductor element mounted on a first surface of a base plate, wherein solder balls are formed on a second opposite surface of the base plate such that the second opposite surface includes an area without solder balls. At least one second semiconductor element is mounted to the base plate at the area of the second surface without solder balls. The at least one semiconductor element may be mounted to the base plate using low molecular adhesive, or in the alternative, high temperature solder.